

USSR

UDC 539.27

NAUMOV, V. A., SEMASHKO, V. N., ZAV'ALOV, A. P., CHERKASOV, R. A., and GRISHINA L. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan

"An Electron Diffraction Study of the Structure of the Molecules of Ethylene Chlorophosphate and Ethylene Chlorotrithiophosphate"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 5, Sep-Oct 73, pp 787-790

Abstract: On the basis of data obtained by an electron diffraction study carried out on ethylene chlorophosphate and its structural analog ethylene chlorotrithiophosphate (II; 2-thiono-2-chloro-1,3,2-dithiaphospholane) in the vapor state, the molecular structure of these compounds was determined. The five-membered heterocycle had a conformation of the semi-chair type in both cases. The molecular parameters for I were $r(C-C) = 1.547 \pm 0.020$, $r(C-O) = 1.488 \pm 0.020$, $r(P-O) = 1.438 \pm 0.015$, $r(P-Cl) = 2.057 \pm 0.010$ Å, $\angle O-P-O = 104.7 \pm 1.5^\circ$, $\angle O-P-Cl = 113.9 \pm 2.0^\circ$, $\angle C-P-Cl = 101.3 \pm 1.0^\circ$, $\angle C-C-O = 108.2 \pm 1.0^\circ$, those for II $r(C-C) = 1.525$ (assumed), $r(C-S) = 1.879 \pm 0.010$, $r(P-S) = 1.885 \pm 0.020$, $r(P-Cl) = 2.123 \pm 0.010$, $r(P-S) = 2.006 \pm 0.015$ Å, $\angle S-P-S = 98.4 \pm 1.5^\circ$, $\angle S-P-C = 113.2 \pm 2.0^\circ$, $\angle S-P-C = 104.2 \pm 1.0^\circ$, $\angle C-C-S = 112.9 \pm 2.5^\circ$.

1/1

- 43 -

UDC 541.124

USSR

PUDOVIK, A. N., CHERKASOV, R. A., SUDAKOVA, T. M., and YEVSTAF'YEV, G. I.,
Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Addition of Phosphorus Dithioacids to the C≡N Bond"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 1, Jul-Aug 73, pp 113-115

Abstract: The reactions of diisopropyldithiophosphoric acid with benzonitrile and the reaction of diphenyldithiophosphinic acid with benzonitrile, cyanoacetic ester and diethyl cyanomethylphosphonate were investigated. Diisopropyldithiophosphoric acid adds to benzonitrile in an equimolar ratio, in the cold, and without any catalysts. Thiobenzamide precipitates after 10-12 days. Treating this mixture with pentane, followed by separation of solid thiobenzamide and cooling the pentane to -10° yields yellow crystalline 0,0-diisopropyl S-benzylimidoaldithiophosphonate m.p. $58-59^{\circ}$. Diphenyldithiophosphinic acid reacts easily with benzonitrile at room temperature yielding thiobenzamide and tetraphenyltrithiopyrophosphate regardless of the ratio of reagents taken. Analogous reaction course is observed in case of the other reagents mentioned. Thus it has been shown that phosphoric dithioacids add to the C≡N bond forming imidoaldithiophosphates -- expressed thiophosphorylating agents.

1/1

USSR

UDC 547.26'118

PUDOVIK, A. N., CHERKASOV, R. A., and OVCHINNIKOV, V. V., Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Some Reactions of Cyclic Dithioacids of Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2638-2642

Abstract: Reactions of cyclic 2,3-butyleneglycoldithiophosphoric, 1,3-butyleneglycoldithiophosphoric, neopentylidithiophosphoric, and pinacolove-dithiophosphoric acids with triethyl phosphite, benzylidenemalonic ester, methylenemalonic ester, diethyl maleate, and diethyl fumarate were investigated. The reactions follow the Arbuzov rearrangement leading to the formation of full esters of cyclic dithiophosphates. By kinetic and thermographic methods it was shown that the cyclic dithiophosphates exhibit higher activity in reactions with acrylonitrile than their acyclic analogs. On the basis of kinetic studies the σ_ϕ constants for cyclic fragments of dithioacids were determined.

1/1

USSR

UDC 547.20'18

ISHMAYEVA, E. A., CHERKASOV, R. A., OVCHINNIKOV, V. V., and PUDOVNIK, A. N.,
Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Oranophosphorus Compounds. X. 1,3,2-Dioxa- and
Dithiaphospholanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2642-2644

Abstract: Dipole moments of the P-S bond were calculated from experimental dipole moments of 1,3,2-dithiaphospholanes. The values determined ranged from 0.26-0.25 D. The change in the bond angle S:P-Alk by $\pm 3^\circ$ with regard to the accepted value of 115° results in a change of the dipole moment of the P-S bond by ± 0.03 D. The change of the dipole moment of the P-S bond caused by the effect of the elements surrounding the phosphorus atom indicates that interactions do take place in the system under investigation.

1/1

- 47 -

USSR

UDC 541.49.547.241

TOROPOVA, V. F., CHERKASOV, R. A., SAVEL'YEVA, N. I., SLYUSAR', N. V.,
PUDOVIK, A. N.

"Investigation of Complex Compounds of Dithio Acids of Phosphorus with
Bivalent Nickel and Cobalt Ions, and Application of the Hammett Equation with
 ρ_p Constants to the Complex-Forming Reactions"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1485-1489

Abstract: Complex compounds of dithio acids of phosphorus with bivalent
nickel and cobalt ions were studied. The composition and stability constants
of the complexes were determined in 90% ethanol-water solutions at an ionic
strength of 0.3 and a temperature of 25°C. It was shown that the stability
constants $\log \beta$ of the complexes conform to the Hammett equation with ρ_p
constants -- specific constants of the substituents associated with the
phosphorus atom in the dithio acid molecule. Correlation parameters are
compared for the reaction series of complex compounds of dithio acids of
phosphorus with ions of various metals.

1/1

1

USSR

UDC 541.57:546.11:547.1'118

SHAGIDULLIN, R. R., LIPATOVA, I. P., VACHUGOVA, L. I., ~~CHERKASOV, R. A.~~, and
KHAYRUTDINOVA, F. Kh., Institute of Organic and Physical Chemistry Imeni
A. Ye. Arbuzov, Acad. Sc. USSR, and Kazan State University Imeni V. I.
Ul'yanov-Lenin

"Hydrogen Bonding in Dithio Acids of the Pentavalent Phosphorus"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72,
pp 847-851

Abstract: IR spectra of a series of liquid phosphinic, phosphonic and phosphoric dithio acids and their solutions in CCl_4 were studied in temperature range 253-293°K. In pure liquids and in concentrated CCl_4 solutions dimers were found to form via the hydrogen bonding. The SH group acted as the proton donor, the acceptor being the thione sulfur atom in the phosphinic acid, and the oxygen atom of the ether group in phosphonic and phosphoric acids. The hydrogen bonding between the SH group and thiophosphoryl sulfur in the phosphinic acid is stronger than the SH hydrogen bonding with the oxygen of the phosphonic and phosphoric acid derivatives, or of the dioxane. In dilute CCl_4 solutions the noncyclic dithiophosphonic and phosphoric acids exist in form of two rotational isomers; the cyclic and the phosphinic compounds exist in a single form. The stabilization of the isomers is due evidently to intramolecular H-bonding.

1/1

1

USSR

UDC 541.67:547.879

VERESHCHAGIN, A. N., ARSHINOVA, R. P., VUL'FSON, S. G., ~~CHERKASOV, R. A.~~, and OVCHINNIKOV, V. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences, at Kazan', and Kazan' State University imeni V. I. Ul'yanov-Lenin

"Steric Structure of Phosphorus-Containing Heterocycles. II. Dipole Moments and Kerr Constants of Certain 2-Thiono-1,3,2-Dioxaphosphorinanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 11, Nov 71, pp 1464-1468

Abstract: Continuing their earlier research on the steric structure of this group of heterocycles, the authors studied four of the 2-thiono-1,3,2-dioxaphosphorinanes with use of the dipole-moment and Kerr-effect methods, along with nuclear magnetic resonance (P^{31}) data. The steric interactions in these four compounds, the Kerr constants of possible structures of compound IV, and the dipole moments of the four, were all determined experimentally. The 2,4-dimethyl- and 2-chloro-2-thiono-1,3,2-dioxaphosphorinanes have chair configuration with the equatorial thionophosphoryl group; the 2-methyl derivative exists in the form of an equilibrium mixture of the axial and equatorial conformers, with predominance of the former.

1/1

USSR

UDC 541.67

ISHMAYEVA, E. A., RAYEVSKIY, O. A., ~~CHERKASOV, R. A.~~, KHALITOV, V. V., and
PUDOVIK, A. N., Kazan' State University imeni V. I. Ulyanov-Lenin, Institute
of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of
Sciences, Kazan'

"Estimating the Dipole Moment of the P-S Bond"

Moscow, Doklady Akademii Nauk SSSR, 1971, Vol 197, No 4, pp 862-864

Abstract: Successful use of the dipole-moment method in structural studies depends largely upon a rational choice of the moments of the individual bonds. In addition, special difficulties arise in connection with calculating the dipole moments of ordinary bonds in which rotation is possible. There is no published information on the dipole moment of the P-S bond, which, apart from being of interest in itself, would make possible extension of use of the dipole-moment method to the structure of organophosphorus compounds.

The authors studied experimentally the dipole moment of 2-thiono-2-methyl-1,3,2-dithiaphosphorine, and applied infrared spectroscopy to determine the dipole moment of the P-S bond.

It was found that the negative end of an ordinary P-S bond is the phosphorus, just as it is in the case of the P-O bond. Various graphic data on the infrared spectra of the above-noted compounds accompany the paper.

1/1

USSR

UDC 547.26'118

TOROPOVA, V. F., ~~CHERKASOV, R. A.~~, SAVEL'YEVA, N. I., GRIGOR'YEVA, L. A.,
SHERGINA, I. V., OVCHINNIKOV, V. V., and PUDOVNIK, A. N., Kazan' State
University imeni V. I. Ul'yannov-Lenin

"Study of Stability of Complexes of Silver, Nickel and Cobalt Ions With
Phosphorus Dithioacid Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1673-1676

Abstract: A study was made of the composition and stability of complex compounds of silver ions with a series of phosphorus dithioacid derivatives, as well as complexes of nickel and cobalt ions with diethyldithiophosphoric acid by the potentiometric method in a 90-percent ethanol-aqueous solution at an ionic strength of 0.3 and a temperature of 25°. Stability constants ($\log \beta_2$) are determined and correlated with constants for substituents at the phosphorus atom in the molecule of the ligand, particularly for the 2,3-butylene glycol substituent.

1/1

- 43 -

USSR

UDC 547.26'118

PUDOVIK, A. N., CHERKASOV, R. A., BYKOVA, I. V., YEVSTAF'YEV, G. I., ZEMSKAYA, Z. I., NAZYPOV, M. N.

"Interaction of Tetraalkyl(aryl)stannates with Phosphorus Dithio Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 76-80

Abstract: The interaction of tetraethyl lead with dithio acids of phosphorus taking place with breaking of one, two or three Pb-C bonds and the formation of the corresponding organolead dithiophosphates has been described [A. N. Pudovik, ZhOKh, No 41, 1472, 1971]. As a continuation of this research, a study was made of the reaction of phosphorus dithio acids with the tetraalkyl derivatives of tin. The dealkylation of the tetraalkyl(aryl)stannates of phosphorus dithio acids takes place with breaking of the Sn-C bond and lead to the formation of trialkyl(aryl)stannyl derivatives of dithiophosphates and phosphonates. The methods of gas adsorption chromatography and differential-thermal analysis were used to study the relative reactivity of tetraalkyl(aryl)stannates. The ease of stripping off the radicals connected to the tin atom decreases in the following series C_6H_5 , C_2H_5 , C_3H_7 , C_4H_9 . Preliminary data are presented on the fungicidal and fungistatic activity of organotin dithiophosphates and phosphonates, their anthelmintic and insecticidal activities. High activities in all these areas were generally demonstrated.

1/1

USSR

UDC 139.143.43:661.718.1

ISHMAYEVA, E. A., ~~CHERKASOV, R. A.~~, OVCHINNIKOV, V. V., and PUDOVIK, A. N.,
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Cyclic Thio- and Dithiophosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71,
pp 1317-1318

Abstract: The authors determined the dipole moments of cyclic thio- and
dithiophosphonates. It is suggested that there is conformational ring mobility.

1/1

- 22 -

USSR

UDC 547.26:118:541.124

PUDOVIK, A. N., CHERKASOV, R. A., KUTYREV, G. A., SAMITOV, YU. YU.,
MUSINA, A. A., GOL'DFARB, E. I., Kazan' State University imeni
V. I. Ul'yanov-Lenin, Kazan, Ministry of Higher and Secondary
Specialized Education RSFSR

"Reactivity of Phosphorus Dithioacids in Reactions With Acryloni-
trile"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 1982-1988

Abstract: This paper is concerned with the effect of substituents
A and B in phosphorus dithioacids of the type $ABP(S)SH$ on reaction
rates with 1,3-conjugated reagents such as acrylonitrile. It was
shown by means of kinetic measurements and differential-thermal
analysis that the reactivity of phosphorus dithioacids with
acrylonitrile increases in the order dithiophosphinates, dithio-
phosphonates, and dithiophosphates. A linear correlation $\lg k$ to
the total values of substituents $\sum \sigma_p$ was determined. Through the
use of NMR (P^{31}) spectroscopy, it was found that reactivity of

1/2

USSR

PUDOVIK, A. N., et al, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1982-1988

dithioacids increases with increase in the total number of electrons in the d orbitals of the phosphorus atom. It was also determined that the dominant role of the effect of the substituent conjugation at the dithioacid phosphorus atom in the transitional state is determined by the reactivity of dithioacids of the phosphate and phosphonate structures.

2/2

- 07 -

USSR

UDC 547.26'118

PUDOVIK, A. N., CHERKASOV, R. A., and SHERGINA, I. V., Kazan' State University
imeni V. I. Ul'yanov-Lenin

"Reactions of the Ammonium Salts of Dithiophosphonates With Dialkoxyphosphane-
methylchloromethyl Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 708-709

Abstract: The reaction of dialkoxyphosphanemethylchloromethyl esters with
ammonium salts of 0,0-dialkyldithiophosphoric acids and polyalkyleneglycold-
ithiophosphates was studied. The reaction occurred easily at 60-70° in
alcohol solution yielding α -diethoxyphosphane- α -diethoxydithiophosphoryldi-
methyl ester, b.p. 160-160°/1 mm, d_4^{20} 1.2026, n_D^{20} 1.4898; α -diethoxyphosphane-
 α' -diisopropoxydithiophosphoryldimethyl ester, b.p. 153-54°/0.6 mm, d_4^{20} 1.1934,
 n_D^{20} 1.4915; polydiethyleneglycol-S-methyloxymethyldiethoxyphosphoryldithio-
phosphate, and its isopropyl permutations — all yellow resins.

1/1

USSR

UDC 541.49 + 547.241

TOROPOVA, V. F., CHERKASOV, R. A., SAVEL'YEVA, N. I., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ul'yanov-Lenin, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Effect of Substituents in Molecule of Phosphorus Dithioacids on Stability of Their Complex Compounds With Mercury Ions"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1043-1046

Abstract: The authors studied the effect of substituents at the phosphorus atom on the stability of complex mercury compounds with a series of phosphorus dithioacids of the type $(RO)_2PSSH$, $(RO)R'PSSH$ and R_2PSSH in water-ethanol solutions. The complexing was studied by the potentiometric method with a mercury indicator electrode. The stability constants (β) of the complex compounds were determined, and the redox potentials of some systems were measured. It is shown that $\log \beta_2$ can be correlated with the sum of substituent constants at the phosphorus atom. In the reaction series under consideration ($n=16$) $\rho = 2.60$, $r = 0.905$.

1/1

- 63 -

1/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SYNTHESIS AND SOME PROPERTIES OF POLY(ALKYLENE GLYCOL S,ALKYL
DITHIOPHOSPHATES) -U-
AUTHOR-(03)-PUDDVIK, A.N., CHERKASOV, R.A., SHERGINA, I.V.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 343-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, POLYMER, GLYCOL, PHOSPHORUS SULFIDE,
EXOTHERMIC REACTION, THIOL, ISOMERIZATION, AMMONIUM SALT, COMPLEX
COMPOUND, AMINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0255 STEP NO--UR/0459/70/012/002/0343/0347
CIRC ACCESSION NO--AP0106911
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF H(OROP(S)(SH)) SUBN DET (POLY(ALKYLENE GLYCOL DITHIOPHOSPHATES)) (I) WITH 30PERCENT P(O R PRIME) SUB3 (WHERE R PRIME EQUALS ME, ET, ISO, PR, BU, ISO, BU, AND C SUB5 H SUB11) WAS EXOTHERMIC AND GAVE THE H(OROP(S)(SR PRIME)) SUBN DET (II) CONTG. 10.0-16.3PERCENT P. AN ABSORPTION BAND AT 670 CM PRIME NEGATIVE1 (WHICH MAY BE ASSIGNED TO VIBRATIONS OF P:S GROUPS) SUGGESTED THAT A THIONE THIOL ISOMERIZATION MAY HAVE OCCURRED IN THE OLIGOMERIC UNIT DURING TRANSESTERIFICATION. THE REACTION OF I AND II WITH NH SUB3, RNH SUB2, R SUB2 NH, AND R SUB3 N (WHERE R IS ALKYL) WAS ALSO STUDIED. I DISSOLVED IN DIOXANE GAVE WITH NH SUB3 (IN THE COLD) AN AMMONIUM SALT WHICH COULD BE TREATED WITH R PRIME BR TO GIVE II. RNH SUB2, R SUB2 NH, AND R SUB3 N REACTED WITH II TO GIVE COMPLEXES.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--WE ARE DOING OUR OWN CONSTRUCTION -U-
AUTHOR--CHERKASOV, V.
COUNTRY OF INFO--USSR
SOURCE--KOMSOMOL, SKAYA PRAVDA, JUL 18, 1970, P 4, COLS 6-8
DATE PUBLISHED--18JUL70

SUBJECT AREAS--AERONAUTICS, BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--AIRCRAFT PRODUCTION, DESIGN BUREAU, AERONAUTIC PERSONNEL,
AIRCRAFT FUSELAGE, GLASS/((U))AN2 AIRCRAFT

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1270 STEP NO--UR/9007/70/000/000/0004/0004
CIRC ACCESSION NO--AN0118319
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--ANO118319

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDENTS DESIGN BUREAU OF THE HAR, KOV AVIATION INSTITUTE, WHICH WAS COMMISSIONED BY DESIGNER O. K. ANTONOV TO IMPROVE THE NEW FUSELAGE OF THE "NA-2M" AIRPLANE, AHS COME UP WITH A NEW IDEA A FUSELAGE ASSEMBLED OF TWO GLASS REINFORCED PANELS INSTEAD OF TEN METAL ONES. MANY MEMBERS OF THE BUREAU REMAIN WITH THE INSTITUTE UPON GRADUATING. ALEKSANDR BRUSHKOVSKIY, WHO HAS BECOME A PROMINENT AVIATION THEORETICIAN, AND IVAN TSIBUL, NIK, WHO WAS RECEIVED THE KONSOMOL PRIZE FOR DEVELOPING A GLASS REINFORCED FUSELAGE, ARE AMONG THEM. THE DESIGN BUREAU IS HEADED BY PIL, NIK.

UNCLASSIFIED

Radiobiology

USSR UDC 616.136.4+616.149.21]-001.29-092.9-085.276-059:615.355:577.156.014

UKLONSKAYA, L. I., KUDRYAVTSEV, V. D., SUSHKEVICH, L. N., and CHERKASOV, V. F., Department of Radiation Pathophysiology (Chief, Prof. V. P. Baluda), Scientific Research Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Antiphlogistic and Antiproteolytic Preparations on Vascular Disturbances of the Intestines of Animals Irradiated by Superlethal Doses"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

Abstract: In experiments conducted on rats irradiated with superlethal doses of Co⁶⁰ gamma-rays (900 and 1000 r), antiphlogistic (butadion -- 5 mg/kg, paracetamol -- 15 mg/kg, and rheopyrene -- 3 mg/kg) and antiproteolytic (trasylol -- 7.5 CIU/kg in combination with E-aminocapronic acid -- 200 mg/kg) preparations were injected intraperitoneally. The functional condition of the vascular wall of the small and large intestines of rats was assessed 72 hours after irradiation by the appearance of Evans blue in the intestinal tissues.

Butadion, which considerably diminished the amount of stain in the tissue, proved to be the most effective. It also increased the survival period
1/2

USSR

UKLONSKAYA, L. I., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

of the irradiated animals; this permitted the supposition to be made that vascular disturbances played a definite role in the pathogenesis of the intestinal form of radiation sickness. 2 figures. 13 references.

2/2

- 69 -

USSR

UDC 577.391

KUDRYAVTSEV, V. D., NESTERENKO, V. S., and CHERKASOV, V. F., Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Whole-Body Gamma-Ray Irradiation on Some Receptor Functions in Rat Skeletal Muscle"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1970, pp 611-613

Abstract: The threshold of electrical stimulation of gastrocnemius receptors in Wistar rats dropped 2 to 3 hours after wholebody irradiation (900 r) and continued to drop steadily until the 5th day, when the excitability of the receptors tended to return to normal. However, on the 7th day the threshold again began to drop. The latent period of excitation in response to single submaximum stimulation was the same as in controls 2 to 3 hours after irradiation, but lengthened significantly thereafter until the 5th day when it approached control values. On the 7th day the latent period again started to lengthen. Following submaximum stimulation when prolonged depolarization of the receptors sets in, impulse activity is partly or entirely blocked because of depression of receptor potential.

1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--A DIGITAL READOUT DEVICE USING AN IN4 TUBE -U-
AUTHOR-(03)-SHLYANDIN, V.M., SHLYKOV, G.P., CHERKASOV, V.I.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, PRIBORY I SISTEMY UPRAVLENIYA, NO 11, 69, P 52
DATE PUBLISHED-----69

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--DIGITAL DECODER, IMAGE TUBE, PULSE COUNTER, BINARY
LOGIC/(U)IN4 INDICATOR TUBE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1449 STEP NO--UR/0445/69/000/011/0052/0052
CIRC ACCESSION NO--AP0104751
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO VARIANTS OF A DIGITAL READOUT CIRCUIT ARE BRIEFLY DESCRIBED, EACH BASED ON THE IMPROVED TYPE IN4 INDICATOR TUBE. THE IN4 HAS DUAL ANODES AND TEN CATHODES, CORRESPONDING TO THE DECIMAL INTEGERS. EACH ANODE OPERATES WITH FIVE CATHODES, ONE SET OF WHICH INDICATES EVEN AND THE OTHER ODD DIGITS. THE CATHODES ARE ALSO PAIRED BETWEEN THE GROUPS, I.E. 0 WITH 1, 2 WITH 3, ETC. THE BASIC CIRCUIT IS OF THE TYPE USED TO INDICATE THE STATUS OF A BINARY DECIMAL COUNTER, BASED ON A 1-2-4-8 OR 1-2-4-2 CODE AND HAVING FOUR INPUT TRIGGERS. TRANSISTORIZED COMMUTATION OF THE TRIGGERS IS USED IN BOTH DESCRIBED CIRCUITS. IN THE FIRST CASE THE CLOCK RATE IS VARIABLE FROM 10 TO 50 KHZ BY MEANS OF A PULSE GENERATOR, WHILE IN THE SECOND VARIANT THE COMMUTATION IS CONTROLLED DIRECTLY BY LINE FREQUENCY FROM MULTIPLE SECONDARIES OF AN INPUT POWER TRANSFORMER. THE PROPOSED DESIGNS USE ONLY ABOUT HALF THE NUMBER OF COMPONENTS FOR THE EARLIER IN TYPE READOUTS MENTIONED. SCHEMATICS OF BOTH VARIANTS ARE INCLUDED, AND THEIR OPERATION IS DESCRIBED.

UNCLASSIFIED

CHERKASOV, V. K.

So: JPRS 53801
12 AUG 71

UDC 613.693:629.7.048.4:612.223.111:661.183.124

AMINOSILICAGELS: REGENERABLE SOLVENTS FOR ABSORBING CARBON
HYDROGEN SULFIDE AND WATER VAPOUR

[Article by I. A. Danilychev, V. V. Strelko, T. M. Buzubekova, V. K. Cherkasov, E. L. Avdeyants, and V. M. Nedelko, Moscow, Kholmashchaya Biokhimiya, No. 5, No. 5, 1971, pp 77-79, submitted 24 February 1969]

One of the principal requirements imposed on atmospheric purification systems in spacecrafts is the capacity for effectively purifying carbon dioxide exhaled by man. The carbon dioxide adsorbents used are unregenerable chemical adsorbents of the type of different peroxide compounds of alkali metals and regenerable sorbents: synthetic zeolites (N. S. Torchesnikov, et al.; Sayile and Naumov).

Although a system for air purification based on synthetic zeolites has been well developed, it has a number of serious inadequacies. In particular, the use of zeolites makes it necessary to use preliminary air drying to the dew point: 60-70°; considerable energy expenditures are required for the thermovacuum regeneration of synthetic zeolites.

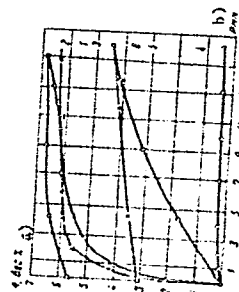


Fig. 1. Isotherms of CO₂ and H₂S adsorption and desorption on aminosilicagel. 1) isotherm of CO₂ adsorption; 2) isotherm of CO₂ desorption; 3) isotherm of CO₂ adsorption in the presence of water vapor; 4) isotherm of CO₂ adsorption in the presence of water vapor; 5) isotherm of H₂S in the presence of water vapor; 6) isotherm of H₂S desorption. a) X by weight; b) P mm Hg.

Life Support
System

USSR

UDC 632.95

PRIKAZCHIKOVA, L. P., RYBCHENKO, L. I., KURILENKO, K. K., CHERKASOV, V. M.,
CHEREPENKO, T. I.

"Insecticidal and Fungicidal Activity of Certain Derivatives of Pyrimidine-
Carboxylic Acids, Methyl and Styryl Pyrimidines"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active
Substances. Republic Interdepartmental Collection), 1972, No 4, pp 89-91
(from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N473)

Translation: Results are presented from tests under laboratory conditions
of derivatives of pyrimidine carboxylic acids, methyl and styryl pyrimidines.
The majority of the tested compounds are weak insectofungicides. The 2,6-
dichloro-4-methylpyrimidine 100% suppresses Alternaria radicina, Aspergillus
niger, Fusarium oxysporium, Venturia inaequalis and Helminthosporium. On
replacement of the Cl atoms by OH, the fungicidal activity drops signifi-
cantly; 2-styrylpyrimidine inhibits the growth of fungus mycelium in a
concentration of 0.1 and 0.05% by 100%; 4-methyluranyl in a concentration
of 1% causes 67% death of houseflies, and 5-bromo-2-methylpyrimidine, 100%.

1/1

- 48 -

Acc. Nr:

AP0046566

C

Ref. Code: UR0206

PRIMARY SOURCE: Vestnik Dermatologii i Venerologii, 1970,
Nr / , pp 55-58

ANTICANDIDIAL PROPERTIES OF CERTAIN DERIVATIVES OF B-NITROSTYROL

B. Ye. Bilich, V. M. Cherkasov, I. F. Vladimirtsev

Summary

The author studied anticandidial activity of 20 β -nitrostyrols, of which 4-bromo- β , β -methylnitrostyrol was found to be the most active and the least toxic. It produced a strong anticandidial effect inhibiting the growth of different species of *Candida* fungi in concentrations of 1-5.1 μ g/ml. This property of the drug is combined with a marked capacity to inhibit the growth of staphylococci and streptococci. 4-Bromo- β , β -methylnitrostyrol is moderately toxic for white mice (LD_{50} by the subcutaneous route is 421 ± 1.3 mg per kg, by the intraperitoneal route 75.2 ± 1.1 mg per kg).

In treatment of visceral candidiasis of mice 4-bromo- β , β -methylnitrostyrol showed nearly the same chemotherapeutic effectiveness as nistatin, and was also effective in treatment of candidial lesions of the rabbit skin.

//

REEL/FRAME
19781830

DI

6

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PRODUCT OF DIFORMAMIDINE SULFIDE OXIDATION -U-
AUTHOR--(03)-CHERKASOV, V.M., VLADIMIRTSEV, I.F., KHRIPKO, S.S.
COUNTRY OF INFO--USSR
SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(3), 254-6
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SULFUR COMPOUND, AMINE DERIVATIVE, OXIDATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0716 STEP NO--UR/0442/70/032/003/0254/0256
CIRC ACCESSION NO--AT0124386
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (HN:C(NH SUB2)) SUB2 S.2HCL (I)
GAVE WITH H SUB2 O SUB2 IN ACOH 74-86PERCENT HN:C(NH SUB2)S(O)SC(NH)
SUB2):NH.2H SUB2 O SUB2 (II) M. 136-7DEGREES. II TREATED WITH HCL,
YIELDED I. ALK. HYDROLYSIS OF II GAVE H SUB2 NCN, (NH SUB2) SUB2 CS,
AND NA SUB2 SO SUB4. FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 632.95

KURILENKO, L. K., CHERKASOV, V. M., PRIKAZCHIKOVA, L. P., RYBCHENKO, L. I.,
CHEREPENKO, T. I. ~~_____~~

"Insecticidal and Fungicidal Activity of 4-N-substituted 5-nitro-6-aminopyrimidine and 6,8,9-substituted Adenine"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 91-93 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N472)

Translation: The test results indicate that the derivatives of purine (I) and pyrimidine (II) exhibit significant insecticidal activity; 4-NH₂-5-NO₂-6-PhNH-II and 8-cyclohexyl-substituted and 8-chlorophenyl-substituted I, and the 8-methylkinetine isomer cause a 90-100% death rate of houseflies.

1/1

USSR

UDC 621.396.933:527.61:629.78.054.07

KRUPENIO, N. N. and CHERKASOV, V. V.

"Dispersion of 3-cm Radio Waves at the Landing Points of Automatic Stations 'Luna-16' and 'Luna-17'"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972, pp 9-12 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G59)

Translation: A description is given of the technique of measurements using the same methods of measurements at various heights of continuous 3-cm wavelength radiation as were used for obtaining flight altitude at the landing section. Results are given of computations of the specific electron paramagnetic resonance in terms of the angle of incidence of the wave and the flight altitude. One illustration, bibliography of five. N. S.

1/1

USSR

UDC 669.715

POSTNIKOV, N. S. and CHERKASOV, V. V.

"Progressive Methods of Smelting and Casting Aluminum Alloys"

Moscow, Progressivnyye Metody Plavki i Lit'ya Alyuminiyevykh Splavov, Izd-vo Metallurgiya, 1973, 224 pp

Translation of Introduction: The production of aluminum alloys and different finished products from them using the method of casting has been used for many decades. It would seem that this period would be sufficient for establishing fully determined methods of production; however even at the present time there is no unified opinion on many questions of the technology in this branch. This is due to the large number of factors which influence the quality of the casting, and the complexity of the phenomena which take place both during the smelting and during casting and crystallization. And only by careful systematization of the scientific and practical materials is it possible to present a clear picture of the processes and phenomena which exist in the metallurgy (smelting and casting) of aluminum alloys. In recent years a number of high-strength alloys have been developed (AL4M, VAL5, AL27, etcetera), as well as new

1/5

- 4 -

USSR

POSTNIKOV, N. S., et al, Progressivnyye Metody Plavki i Lit'ya Alyuminiyevykh Splavov, Izd-vo Metallurgiya, 1973, 224 pp

methods of casting (casting under low pressure, casting by pressing, etcetera). All this has facilitated the expansion of the list of cast parts of the most important types. But along with this, all the possibilities of standard alloys and long-familiar casting methods are far from being used. Thanks to the modern idea of alloying, modification, heat treatment, as well as the improvement of known methods of casting, it is possible to have a complete realization of the properties of alloys all the way up to production of parts from them, the exploitation of which must ensure reliability of construction.

The advantages of casting parts prior to other methods of producing them involve not only less time consumption for the process, uniformity of structure, lack of anisotropy in the properties and increase in rigidity of the cast structures, but also the possibility of manufacturing parts which can never be produced by other methods.

The specifics of the cast production, especially at the current stage, when the question of replacement in a number of

2/5

USSR

POSTNIKOV, N. S., et al, Progressivnyye Metody Plavki i Lit'ya
Alyuminiyevykh Splavov, Izd-vo Metallurgiya, 1973, 224 pp

cases of deformable semi-finished products by cast parts, require a tight, creative cooperation of constructors, technicians, and metal workers. Therefore it is necessary to acquaint the constructors with the properties of cast alloys, the metallurgical bases of their production, and the technical-economic advantages of cast parts, and to acquaint the metallurgists with the operating conditions and basic requirements imposed on the cast parts.

CONTENTS

	Page
Introduction.....	4
Chapter One. Contemporary Achievements in the Area of Development and Use of Cast Aluminum Alloys.....	5
1. General Characteristics of High-Strength Cast Alloys.....	5

3/5

- 5 -

USSR

POSTNIKOV, N. S., et al, Progressivnyye Metody Plavki i Lit'ya
Alyuminiyevykh Splavov, Izd-vo Metallurgiya, 1973, 224 pp

	Page
2. Technico-Economic Advantages of Using Cast Al- loys Instead of Deformable Ones.....	29
3. Choice of Optimal Composition of Alloys.....	45
Chapter Two. Smelting and Casting of Cast Alloys.....	61
1. Physico-Chemical Bases of Smelting.....	61
2. Comparative Analysis of Methods of Refining...	65
3. Features of Smelting in Different Type Furn- aces.....	93
4. Automatic Casting and Dosing of a Melt.....	121
5. Rapid Control of the Gas Saturability of a Melt.....	131
Chapter Three. Methods of Producing Cast Parts.....	141

4/5

USSR

POSTNIKOV, N. S., et al, Progressivnyye Metody Plavki i Lit'ya
Alyuminiyevykh Splavov, Izd-vo Metallurgiya, 1973, 224 pp

	Page
1. Compositions and Properties of Casting and Rod Impurities.....	143
2. Improved Methods of Casting in Sand Molds.....	153
3. Mechanized Methods of Precise Casting.....	161
4. Methods of Construction and Modeling of Pour- ing Channel Systems.....	178
Chapter Four. Defects in Cast Parts, Methods of Detecting and Removing Them.....	187
1. Basic Types of Defects and Ways of Preventing Them.....	187
2. Controlling the Quality of Casting.....	207
3. Correcting Casting Defects.....	215
Bibliography.....	222

5/5

- 6 -

USSR

UDC 669.715'3'782'73'721'781.018.28:669.018.2(088.8)

STROGANOV, G. B., AL'TMAN, M. B., POSTNIKOV, N. S., KHOLODOV, Yu. I., OSIPOV, I. N., LOKTIONOVA, L. I., and CHERKASOV, V. V.

"High-Strength Aluminum-Base Casting Alloy"

USSR Authors' Certificate No 260893, Cl. 40 b, 21/02, (C22c), filed 10 Apr 68, published 12 May 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1766 p)

Translation: The alloy contains (in %) Si 6-8, Cu 2.5-5.5, Cd 0.05-0.4, Mg 0.05-0.4, B 0.002-0.1, Zr 0.005-0.25, Ti 0.1-0.3, Fe \leq 0.5. The addition of up to 0.5% Ni is recommended in order to raise heat resistance. In the heat-treated state under regime T5 the alloy at room temperature (loam casting) has a breaking point of 36-40 kg/mm², $\sigma_{0.2}$ 30-34 kg/mm², and σ 3-6% given $\sigma_{100}^{300} = 5.5$ kg/mm². The alloy possesses elevated fluidity and impermeability, is highly machinable, is weldable by argon arc welding, and contains no toxic elements. It is recommended for the manufacture of cast parts subject to great stresses.

1/1

- 16 -

1/2 006 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--BASIC TRENDS IN THE APPLICATION OF SPU CONTROL IN FLEET OPERATIONS
-U-
AUTHOR--(02)-IVCHENKO, V.V., CHERKASOV, YA.K.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, RYBNOYE KHOZYAYSTVO, NO 12, 1969, PP 65-67
DATE PUBLISHED-----69

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--FISHING SHIP, FLEET OPERATION, ECONOMIC PLANNING TECHNIQUE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/0918 STEP NO--UK/0337/69/000/012/0065/0067
CIRC ACCESSION NO--AP0104340
UNCLASSIFIED

2/2

006

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104340

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE CONTAINS AN INVESTIGATION OF THE APPLICATION OF SPU (NETWORK PLANNING AND CONTROL) TECHNIQUES AS ONE OF THE RESERVES FOR IMPROVING OPERATIVE CONTROL OF PREPARATION OF SHIPS FOR FISHING. EFFORTS TO USE SPU TECHNIQUES IN VARIOUS AREAS OF CONTROL OF THE FLEET OPERATIONS ARE ANALYZED. A BASIC LIST OF PROBLEMS (WITH RESPECT TO CONTROL LEVELS) FOR WHICH IT IS POSSIBLE TO USE SPU TECHNIQUES TO IMPROVE OPERATIONS CONTROL IN PREPARING FISHING SHIPS FOR PUTTING OUT TO SEA IS PRESENTED. THE PROGRESS IN APPLYING THE SPU SYSTEM IN OPERATING THE FLEET HAS OVERCOME THE DOUBTS OF THE PRACTICAL WORKERS IN FISHING ENTERPRISES. HOWEVER, THERE IS A TENDENCY AT THIS TIME TO OVERESTIMATE THE VALUE OF THE SYSTEM AND TO APPLY IT TO PROBLEMS AND ON LEVELS OF CONTROL WHERE OTHER METHODS OF PROCESSING PRODUCTION ECONOMIC INFORMATION SHOULD BE USED.

UNCLASSIFIED

JPRS 48,301

UR 0051

USSR

AP9023797

TUMITSKIY, L. N.; CHERKASOV, Ye. M.

"Role of Collisions in Gas Lasers"

Leningrad, Optika i Spektroskopiya; February, 1969; pp 271-5

ABSTRACT: The article deals with the effect of elastic collisions on the distribution of atomic velocities and on the form of the amplification factor in gas lasers in which there exists a nonequilibrium distribution of atomic velocities. Expressions are obtained for the distribution of atomic velocities and the form of the amplification factor in a model of strong collisions. The dependence of the line width of the radiation of atomic oxygen 8446 Å on the pressure in an argon-oxygen mixture is studied experimentally.

1/1

1932 0861

43
5
1
49

AP9030174 CA 8/69

UR 0051

34941p Pulse mode of operation of an argon-oxygen laser. Tunitskiy, L. N.; Cherkasov, V. M. (USSR). *Opt. Spektrosk.* 1969, 26(4), 630-4 (Russ). Generation of high-current pulses is achieved in a mixture of Ar and O₂ at 1.5 torr (ratio of partial pressure $p_{Ar}:p_{O_2} = 50:1$) on the line of at. O ($\lambda = 8446$ A.). Interferometric and oscillographic studies of the generation and of the spontaneous radiation from the transition $3^3P_2 \rightarrow 3^1S_1^0$ of the O atom are performed. The exptl. results confirm an earlier suggestion by T. and C. (1967) that the upper levels of the working transition are populated through the transfer of the excitation in the inelastic collision of Ar-atoms in the metastable state with O atoms in the ground state.

Peter Vaida

32

5

1

38

1/1

1938

0268

21

USSR

UDC 778.534.83

CHERKASOV, Yu. A., Candidate of Sciences, KISLOVSKIY, I. L., ANDRONOV, V. V.,
LYUBIN, V. M., Candidate of Sciences, AND FEDOROVA, Ye. I.

"Electrophotographic Spectrovisor for the Visible Area of the Spectrum Based
on Recording Vidicon"

Optiko-mekhanicheskaya Promyshlennost', No 10, 1971, pp 28-32.

ABSTRACT: Results are presented from a study of the parameters of an electro-
photographic spectrovisor, based on a recording vidicon. The spectrovisor can
be used for observation and recording of spectrograms and photomicrograms in
the visible area in a periodic mode at 25 frames per second and in the time
integration mode with a resolution of 25 mm^{-1} and a sensitivity of up to
200 state standard units. The method of visualization of spectra is based on
recording of an optical image by a recording photoconductive layer, so that
the optical image is converted to the corresponding potential relief with sub-
sequent visualization.

1/1

Acc. Nr: **AP0040028**

Ref. Code: **UR 0481**

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya,
1970, Nr / , pp 22-29/

ON THE POSSIBILITY OF EXPLOSIONS IN THE OPERATING THEATRE

A. A. Cherkasova

Conditions enabling explosion are described. A table of limits of ignition of anaesthetics gives idea of explosive concentrations of anaesthetics. Two cases of explosion are described.

REEL/FRA
19741436

Phytology

USSR

UDC 576.851.28:576.809.51

CHERKASOVA, G. V., and SAFIYAZOV, Zh., Department of Microbiology, Academy of Sciences Uzbek SSR

"Comparative Sensitivity of Some Sporulating Bacteria to Various Physical Factors"

Tashkent, Uzbekskiy Biologicheskii Zhurnal, No 4, 1970, pp 10-12

Abstract: A study was made of the effect of high temperatures, UV rays, and X-rays on vegetative cells and resting spores of *B. cereus*, *B. megatherium*, and the nonsporulating *B. megatherium* strain Mutilate. The vegetative cells were very sensitive to high temperatures and X-rays. At 50°C for example, only 0.9% of the *B. megatherium* (Mutilate) cells survived. The survival rate of *B. megatherium* and *B. cereus* after exposure to 6 kr of X-rays was 58% and 30%, respectively, while a dose of 150 kr was lethal to these cultures. Spores were 10 to 12 times more resistant to X-rays than the vegetative cells. In all growth phases, the cultures that were resistant to X-rays were generally also resistant to high temperatures and UV rays. The sensitivity of the nonsporulating Mutilate strain was similar to that of vegetative cells.

1/1

USSR

UDC 615.5+57.04

CHERKASOVA, L. S., and PIKULEV, A. T., Doctors of Biological Sciences (Editors)

Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nyu nervnyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. minske v Dekabre 1968g (Effect of Small Doses of Ionizing Radiation on the Central Nervous System -- Materials of the All-Union Symposium held in Minsk in December 1968), Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

Translation: The materials in this collection are a discussion of the reports given at the All-Union Symposium on the effect of ionizing radiation on the central nervous system.

Some of the papers were devoted to various problems of clinical radiation pathology, and others pertained to the metabolism of the brain and the role of the hypothalamus-hypophysis-adrenal system in radiation pathology. In two of the articles, the authors try to standardize the experimental procedure, assuming utilization of ionizing radiation:

The results of some of the papers are of interest to researchers dealing with the problems of space radiobiology.

1/9

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors) Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

On the whole, the collection will be useful to scientific workers, post-graduate students and students in the advanced courses specializing in biophysics, biochemistry, radiobiology and also clinicians dealing with radiation pathology.

Foreword

At this time radiobiology has at its disposal comparatively broad data on the effect of large doses of ionizing radiation on the organism. Without refuting the undoubted importance of this research, we must consider that during peacetime and even under extraordinary circumstances, low radiation levels, especially under the conditions of chronic effects, will have great practical significance. This determines the urgency of the symposium with respect to the effect of ionizing radiation on the central nervous system held in December 1968, in Minsk on the initiative of the Physiology Institute of the Belorussian SSR Academy of Sciences. The most important reports given at the symposium are presented in this collection.

2/9

- 100 -

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

There is no doubt that the mechanisms of the development of pathology and the recovery processes in the presence of small doses of radiation have their characteristic features. This can be judged at least by the fact that the chemical radio protectors, as a rule, turn out not to be effective in the case of ionizing radiation in small doses. It is possible that this depends on the fact that large doses basically have a damaging effect, and small doses, especially under chronic conditions, mainly disturb the processes of physiological recovery. This proposition, just as many others, lacks experimental basis.

The selection of the nervous system as the object of research the results of which are presented here is undoubtedly appropriate. Soviet classical neurologists recently demonstrated that under both physiological and pathological conditions the nervous system is the first to react to all changes in environment. The goal of radiobiologists, physiologists, biophysicists and biochemists is to determine the effect of various doses on the nervous system and to establish the biological significance of various changes in this system; in other words, to establish what processes in the nervous system are the "physiological

3/9

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), *Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g*, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

measure" of the organism and which are a manifestation of the approaching radiation pathology. There is no clear distinction between the physiological and the pathological. However, the strength and duration of the oncoming changes, the set of other manifestations of the radiation effect, the reversibility of the reactions, and so on permit radiopathologists to make decisions regarding this highly complex problem.

There is hardly any doubt that when we are talking about radiation effects on the nervous system it is necessary to distinguish the radiosensitivity and radio injury.

The research of O. P. Voyevodina is of interest. She has demonstrated that whole-body irradiation in the amount of one roentgen on a daily basis and reaching a total dose of 7-10 roentgens cause imbalance of the excitatory and inhibitory processes of the cerebral cortex of dogs without any changes in the quantitative composition of leukocytes in the peripheral blood. The changes are of a reversible nature. Normalization comes after 29-40 days.

4/9

- 101 -

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), *Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nyu nervnyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g*, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

This type of research must be continued. It can have very great significance for the future experimental basis of the maximum permissible level.

This collection contains interesting papers on clinical pathology (I. S. Glazunov, et al., A. K. Gus'kova, et al., and so on). People working under the conditions of possible professional irradiation (workers on accelerators, reactors, x-ray technicians, and others) were subjected to especially careful clinical analysis. In the papers mentioned, unique data are presented on radiation pathology. It is classified with respect to radiation doses and forms of clinical manifestation. Highly complex problems are solved with respect to establishing the causal relationship of the discovered aberrations from irradiation.

The report by I. Ya. Tereshchenko, where the remote consequences of irradiation of children are demonstrated, must attract special attention. The results obtained indicate the inadmissibility of the applied method of radiation therapy in small children.

5/9

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

In my opinion there is no special necessity for discussing the timeliness and significance of the research dealing directly with the problem of space radio pathology (Yu. G. Grigor'yev, et al.).

A number of interesting studies performed under the guidance of Professor L. S. Cherkasova must be mentioned. These papers deal with the urgent problems of metabolism of the brain and the role of the hypothalamus-hypophysis system in radiation pathology. Without a comprehensive study of these problems it is impossible to discover the pathogenetic mechanisms.

The deeper and more completely the problems of radiation biochemistry and hormonal effects on these processes are studied, the more well-founded the principles of radiation damage therapy will be.

Contents

Page

Introduction
6/9

3

- 102 -

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

	Page
Yu. G. Grigor'yev, B. A. Markelov, V. I. Popov, P. I. Kumets. Augmentation of the Excitability of the Vestibular Analysor of Dogs After Prolonged Irradiation in Small Doses	6
O. N. Voyevodina. Effect of X-rays in Small Doses on the Situation Conditioned Reflexes of Dogs	13
Ye. P. Sizan. Chain Motor Conditioned Reflexes in Dogs Subjected to Chronic Irradiation in Small Doses	22
A. K. Gus'kova, A. V. Barabanova, G. I. Kirsanova, A. A. Losev. Changes in the Nervous System Under Professional Effects of Ionizing Radiation	27
N. Ya. Tereshchenko. Study of Damage to the Nervous System of Children in Remote Periods of Postnatal Irradiation	34
L. L. Kantarovich, G. G. Zakharov, L. K. Pershay, V. I. Ternov. Some Data on the State of the Nervous System of Workers on the Belorussian Atomic Reactor	41

7/9

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nuyu nervnuyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

Page

- | | |
|---|----|
| I. S. Glazunov, V. V. Blagoveshchenskaya, G. N. Martynova, D. A. Ginzburg, A. A. Losev. Procedural Possibilities of Objectivization of the Asthenic Syndrome Under the Effect of Small Doses of Ionizing Radiation | 48 |
| K. V. Fomichenko, M. F. Kukulyanskaya, T. M. Mironova, A. T. Pikulev, M. Yu. Tayts, V. G. Fomichenko. Procedural Approaches to Estimating the Effect of Ionizing Radiation on the Central Nervous System | 54 |
| M. Yu. Tayts, R. A. Nasirov, G. F. Tyrttyshina. Dehydrogenase Activity and Cytochrome System of the Mitochondria of the Brain of White Rats Under the Effect of Small Doses of Ionizing Radiation | 63 |
| A. M. Stashkov. Functional State of the Adrenergic Mechanism of the Brain in Control Animals and Protected Irradiated Animals | 69 |
| L. S. Cherkasova, M. F. Kululyanskaya, T. M. Mironova, M. Yu. Tayts, Fomichenko, V. G., Radiation Changes of the Carbohydrate Metabolism of the Brain and Their Dependence on the Functional State of the Hypophysis-Adrenal System | 75 |

8/9

- 103 -

USSR

CHERKASOVA, L. S., and PIKULEV, A. T. (Editors), Deystviye malykh doz ioniziruyushchey radiatsii na tsentral'nyu nervnyu sistemu -- materialy vsesoyuznogo simpoziuma, sostoyavshegosya v g. Minske v Dekabre 1968g, Minsk, Belorussian State University imeni V. I. Lenin Press, 1971, 112 pp

	Page
A. T. Pikulev, T. K. Asipchik, I. I. Dovgalevich, M. P. Chuyko, T. V. Shimanskaya. Radiation Shifts in Glutamic Acid Metabolism Against a Background of Pharmacologic Adrenalectomy	83
I. I. Dovgalevich. Effect of X-irradiation on the Metabolism of Free and Bound Aminoacids in the Gray and White Matter of the Brain as a Function of the Functional State of the Adrenal Glands	93
M. Ye. Kakuliya, G. K. Goksadze. Effect of Small Doses of Ionizing Radiation on the Macromolecular Structure of DNA and Its Subsequent Recovery in the Gray and White Matter of the Brain of an Animal	97
I. N. Savateyev. Effect of Small Doses of Ionizing Radiation on Certain Blood Components	101
I. P. Khripchenko, N. V. Artimovskaya, T. F. Kostyukovich. Pyridoxal Coenzyme Content in the Blood Plasma of White Rats Under Various Effects on the Organism	104

USSR

UDC 612.5:612.58

CHERKASOVA, M. A., Petropavlovsk Pedagogical Institute

"Changes in Temperature Topography and Distribution of Heat in the Body
During Prolonged Craniocerebral Hypothermia"

Moscow, Biologicheskiye Nauki, No 9, 1971, pp 38-42

Abstract: Hypothermia was induced in 1- to 8-year old cats by applying a mixture of snow and ice to their heads for 2 to 5 hours. Chilling was halted when the body temperature fell to 25 to 28° and this level was maintained for 12 to 63 hours. The body temperature dropped 2.5° the first hour and 4.1° the second. Hypothermia resulted initially in considerable temperature differences between the cranial and caudal parts of the body, but prolongation of the action reduced these differences sharply. The index of heat circulation was higher in the brain than in the rectum or lower extremities.

1/1

USSR

UDC 541.183.2 + 541.64 + 547.538.141

LEYKIN, Yu. A., DAVANKOV, A. B., KORSHAK, V. V., and CHERKASOVA, T. A.,
Institute of Element-Organic Compounds Academy of Sciences USSR, and Moscow
Chemical-Technological Institute imeni D. I. Mendeleev

"The Influence of the Substituent Effect on the Strength of Functional Groups
in Polystyrenephosphonic Acid Cationites"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 71,
pp 273-277

Abstract: Acid strength of ionic groups in three-dimensional cationites depends on physical and chemical factors. Physical factors such as the degree of crosslinking or hydrophilicity of the polymer matrix determine the amount of free and hydrated water in the cationite gel. The chemical factors include intramolecular electric effects of the substituents which shift the electron density in common cation exchange systems. These effects were studied in a series of monofunctional polystyrenephosphonic acid cationites and an equation was developed relating the electron-donor effect of the polymer substituents in a mixture of p- and m- isomers to apparent dissociation constant of the cationite

$$\sigma_F = \frac{pK' - pK'_0}{\rho} - \sigma_F^x$$

1/2

USSR

LEYKIN, Yu. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya,
No 2, Feb 71, pp 273-277

where σ_X = the values for substituents -OR, R, obtained by Kabachnik. It
was determined that the pK' value for nonporous resins corresponds to the pK'
value of 1-20% crosslinked resins containing 1-3% of divinylbenzene; this may
be due to the content of free water in the micropores.

2/2

- 67 -

1/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--REACTION OF THE PRODUCT OF RHODIUM CARBONYLATION BY
DIMETHYLFORMAMIDE WITH 8 HYDROXYQUINOLINE AND 8 MERCAPTOQUINOLINE -U-
AUTHOR--(05)-VARSHAVSKIY, YU.S., KNYAZEVA, N.N., CHERKASOVA, T.G.,
IVANNIKOVA, N.V., IONINA, T.I.
COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 715-22

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RHODIUM COMPOUND, COMPLEX COMPOUND, CARBONYL RADICAL, FORMIC
ACID, AMIDE, QUINOLINE, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1469

STEP NO--UR/0078/70/015/003/0715/0722

CIRC ACCESSION NO--AP0116906

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--230C170

CIRC ACCESSION NO--AP0116906

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROWN VIOLET (RHL(CO) SUB2), BROWNISH (RHL PRIME (CO) SUB2), AND ORANGE (RHL PRIME H(L PRIME)), FORM IN HCONME SUB2 SOLNS. FO RHCL SUB3 WITH SALTS OF 8 HYDROXYQUINOLINE (LH) OR 8 MERCAPTOQUINOLINE (L PRIME H), RESP. THEIR STRUCTURE IS ANALOGOUS TO THAT OF DICARBONYL COMPLEXES OF IR(I) AND RH(I) AND SCHIFF BASES. L PRIME H EASILY REPLACES CO GROUPS IN THE INNER COORDINATION SPHERE: SOME (RHL PRIME H(L) SEPD. EVEN AT 1:1 L PRIME H:RH RATIO. THIS AND THE EASE OF THE REPLACEMENT OF CO GROUPS FROM (RHL PRIME (CO) SUB2) BY L POINT TO A STRONG TRANS EFFECT OF L PRIME LIGANDS.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

UDC 615.781

CHERKASOVA, Ye. M., PRYANISHNIKOVA, N. T., BOGATKOV, S. V., and YERKOMAYSHVILI, G. S., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Institute of Pharmacology and Chemotherapy, Academy of Medical Sciences, USSR

"Advance in the Chemistry of Anesthetics (1961-1971 Decade)"

Moscow, Uspekhi Khimii, Vol 42, No 10, Oct 73, pp 1892-1919

Abstract: A review with 411 references covering the more important studies on the chemistry of anesthetics in the past decade. Anesthetics represented by various classes of organic compounds are discussed: esters of amino-alcohols, aminoamides, aminoacid amides, aminoketones, and other mono-functional representatives. The structure-activity relationship is stressed. Considerable coverage is given to the literature data on the mechanism of action.

1/1

USSR

UDC 547.435 + 577.153.4

KUNDRYUTSKOVA, L. A., MIKHAYLOVA, N. A., SUKHOVA, I. YE.,
BOGATKOV, S. V., and CHERKASOVA, YE. M., Moscow Institute of Fine
Chemical Technology imeni M. V. Lomonosov

"Cholinesterase Inhibition by Some Amino Alcohol Esters"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 352-
355

Abstract: The authors reported for the first time the study of the interaction of amino alcohol benzoates $C_6H_5COOC(Ar)(R)(CH_2)_nNH_2$ and a number of their analogs with butyryl cholinesterase (I.U.B. 3.1.1.8) (ChE). It was found as a result of preliminary experiments, that the character of the interaction of these substances with ChE depends on the structure of the amino alcohol group on Ar and R. Thus, esters of primary alcohols ($Ar=R=H$) are hydrolyzed by cholinesterase and display inhibitor properties only in concentrations of 10^{-4} - 10^{-3} mol/l, while esters of secondary and tertiary alcohols ($Ar=C_6H_5$, $R=H$, C_2H_5) are not hydrolyzed at all by ChE and manifest inhibitor properties in concentrations of $\sim 10^{-6}$ mol/l. In a number of cases, it was found that the

USSR

KUNDRYUTSKOVA, L. A., et al., *Doklady Akademii Nauk SSSR*, Vol 196, No 2, 1971, pp 352-355

hydrolysis rate of butyrylcholine (BuCh) in the presence of inhibitors does not depend on the time of their pre-incubation with ChE (1-20 min.), which confirmed the reversible inhibition character. A study was then made of the dependence of the reaction rate on the substrate (BuCh) and inhibitor concentration. It was found that the quantity V_0/V_I within the limits of experimental accuracy does not depend on the substrate concentration, which is characteristic of noncompetitive inhibition. It is suggested that effective inhibition requires a combination of reaction centers in one molecule, i.e. the inhibitor must be bifunctional in order to simultaneously be connected with the anion center and suppress deacylation.

2/2

USSR

UDC 547.298.1+547.554

BORISOVA, Ye. Ya., YUSHCHENKO, T. M., and CHERKASOVA, Ye. M., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"Aminoamides. VI. Synthesis of Aminoamides of the Pentane Series"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 6, Jun 71, pp 1173-1175

Abstract: With the view of investigating the physiological and physico-chemical properties of the products obtained, work on aminoamides with the general formula II was continued and compounds of this type with $n = 4$ were synthesized from 1-dialkylamino-5-alkyl- and 1-dialkylamino-5-dialkyl-5-pentanol (I; $n = 4$) by subjecting the latter to the action of nitriles in the presence of H_2SO_4 : $R''R' C(OH)-(CH_2)_nNR_2$ (I) + $R'''CN(H_2SO_4) \rightarrow R'''RC(NHCOR'')-(CH_2)_nNR_2$ (II). The aminopentanol (I) were prepared by a method described by T. T. Vasil'yeva et al in Izv. AN SSSR, Ser. Khim., 2817, 1970. New compounds II with $n = 4$ and $R = H$, $R' = R''' = Et$, $R'' = Me$; $R = H$, $R' = R''' = Et$, $R'' = Ph$; $R = R' = R''' = Et$, $R'' = Me$; $R = R' = R''' = Et$, $R'' = Ph$; $R = H$, $R' = Et$, $R'' = Me$, $R''' = Bu$; $R = H$, $R' = Et$, $R'' = Ph$, $R''' = Bu$; $R = R' = R''' = Me$; $R = R' = R''' = Me$, $R'' = Ph$ were synthesized. The physical constants of these compounds are listed. In the conversion of I to

1/2

USSR

BORISOVA, Ye. M., et al, Zhurnal Organicheskoy Khimii, Vol 7, No 6, Jun 71, pp 1173-1175

II, compounds I with two alkyl groups at the carbinol C atom, such as those prepared in this instance, reacted much more readily than compounds I with one alkyl and one phenyl group at this atom. Compounds of the latter type had been investigated in earlier work. The secondary and tertiary aminopentanol I ($n = 4$) that had been prepared reacted with equal facility in the conversion to aminoamides II.

2/2

- 37 -

USSR

UDC: 621.362.2(088.8)

TEREKOV, A. Ya., SILIN, L. L., CHERKASSKIY, A. Kh.

"An Installation for Durability Testing of Thermocouples"

USSR Author's Certificate No 252436, filed 6 Aug 68, published 19 Mar 70
(from RZh-Elektrotehnika i Energetika, No 10, Oct 70, Abstract No 10A164 P)

Translation: An installation is proposed for durability testing of thermocouples. The unit contains a hermetically sealed housing which accommodates two heaters for the cold and hot ends of the specimen to be tested, electrically insulated thermal junctions between the specimen and the heaters, measurement thermocouples, and probes. To increase the operational reliability of the installation, flexible heat contact plates based on steatite with the addition of 1-20 percent molybdenum are used as the electrically insulated thermal junctions.

1/1

- 01 -

USSR

UDC: 621.362.2

MAKAROV, V. S., KOLOMCYETS, N. V., ~~CHERKASSKIY A. Kh.~~

"A Thermoelectromagnetic Pump"

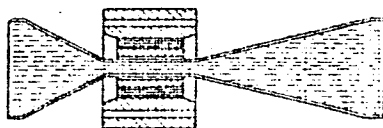
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki,
No 11, Apr 72, Author's Certificate No 333646, Division H, filed 25 Nov 70,
published 21 Mar 72, p 213

Translation: This Author's Certificate introduces a thermoelectromagnetic pump which contains P and N semiconductors, hot and cold commutation buses, a channel with liquid metal coolant, a cooling system, and a magnetic system with permanent magnets. As a distinguishing feature of the patent, the length of the working gap of the magnetic system is reduced and the efficiency of the pump is increased by making the cold commutation bus in the form of a polepiece of the magnetic system with cooling channels inside.

1/2

USSR-

MAKAROV, V. S. et al., USSR Author's Certificate No 333646



2/2

- 97 -

USSR

CHERKASSKIY, B., Doctor of Medical Sciences

"They Took A Chance"

Moscow, Sel'skaya Zhizn', 8 Jan 72, p 4

Abstract: Last year at a sovkhos in Keleskiy Rayon, Chikmentskaya Oblast', there was an outbreak of anthrax among cows owned individually by several farmers. Without consulting a veterinary worker, the owners of the cows slaughtered the sick animals, ate some of the meat, gave some of it to their neighbors and delivered the hides to representatives of the Zagotzhivsyr'ye office (Prepared Materials of Animals Origin). As a result, there was a severe outbreak of anthrax among persons who had used the meat or had been in contact with the infected hides. While sovkhos herds and other communal herds are subject to compulsory annual immunization against anthrax, the privately owned animals are not protected. It is a violation of criminal laws to slaughter sick animals for food and to sell, buy, or distribute their meat, hides, or fur without permission from veterinary workers, but the owners of the diseased cows took a chance. The people from Zagotzhivsyr'ye who accepted the infected hides share in the responsibility. As a result of the application of

1/2

- 90 -

USSR

CHERKASSKIY, B., Sel'skaya Zhizn', 8 Jan 72, p 4

effective sanitary measures, the incidence of anthrax among animals and humans has been reduced drastically under the Soviet government. However, this disease is very insidious. Spores formed by *B. anthracis* from infected animals may persist in the soil for dozens of years and then cause renewed infection of cattle. Another dangerous zoonosis that affects humans is rabies, which is spread principally by stray dogs. Control of rabies depends on the proper keeping of dogs, which should be restrained rather than allowed to run around. Dogs are licensed annually. If they are taken into the streets, they must have a muzzle and be led on a short leash. If dogs are found in the streets without a leash and muzzle they are regarded as strays, whether licensed or not, and are subject to capture and exterminated unless the owner is found. In the majority of republics of the USSR, compulsory immunization of dogs against rabies is being carried out. The dogs usually receive antirabies shots at the time when their license is issued. If an animal that has rabies or is suspected of having rabies bites a house dog, a cat, or a cow, this must be reported to the authorities or to veterinary or medical personnel. Rabies cannot be cured, but it can be prevented by antirabies inoculations even after a person has been bitten. The incubation period for this disease in humans is 1-1.5 mo and sometimes several months.

2/2

Immunology

USSR

UDC 616.981.51-084.47:615.473.9

BURGASOV, P. N., CHERKASSKIY, B. L., ADILOV, D. A., KNOP, A. G.,
SAVINYKH, A. I., and AGZAMOV, B. M., Central Institute of Epidemiology,
Moscow

"Immunization of Humans Against Anthrax by the Jet-Injection Method"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 73,
pp 23-26

Abstract: Persons 16-25 yrs old were immunized against anthrax with STI vaccine by the jet-injection method, subcutaneously with a syringe, and by skin scarification. Jet injection was carried out at a pressure of 11 atm by means of a BIP-4 injector. General reactions indicated by fever did not develop on immunization by any of the three methods applied. Local skin reactions were weak; they were exhibited most frequently on immunization by the jet-injection method, less frequently on application of the scarification method, and with the least frequency on immunization by injection with the hypodermic syringe. As indicated by skin allergy tests with anthraxin, the immuno-allergic readjustment of the organism which developed after immunization by the jet-injection method was no less pronounced than that which took place on immunization by the two other methods.

1/1

USSR

UDC 616.981.51-022.376:(675.6+675.03(47)

CHERKASSKIY, B. L., Central Institute of Epidemiology, Moscow

"Imported Raw Material of Animal Origin as a Factor in the Transmission of Anthrax to Man in the USSR"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971, pp 114-118

Abstract: The incidence of anthrax was very high in pre-revolutionary Russia and during the first 10 years of the Soviet regime mainly among those handling wool, hides, harris, bristles, furs, etc. Now, however, cases are comparatively rare because of planned vaccinations of vulnerable groups and because of the effectiveness of the regulations governing the procurement, storage, transportation, and processing of animal raw material imported from India, Indonesia, Ethiopia, Iran, and Argentina. These products are often contaminated by anthrax spores which are dispersed in the atmosphere in the course of handling, as shown by the results of bacteriological examination of smears taken from various objects in processing plants. Since imported raw material presents a continuing danger, primary processing should be concentrated in a limited number of plants where steps can be taken to prevent the anthrax pathogen from spreading to soil and water.

1/1

- 42 -

1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF SYNESTROL ON THE DEVELOPMENT OF EXPERIMENTAL OSTEOSARCOMA
-U-
AUTHOR--(02)-KORNITSKIY, M.A., CHERKASSKIY, L.A.
COUNTRY OF INFO--USSR
SOURCE--VOP. ONKOL. 1970, 16(3), 84-90
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BONE DISEASE, TUMOR, CARCINOGEN, BENZENE DERIVATIVE,
CHEMOTHERAPY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/2044 STEP NO--UR/0506/70/016/003/0084/0090
CIRC ACCESSION NO--AP0117287
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117287

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEN MG OF 9,10-DIMETHYL,1,2,BENZANTHRACENE WAS INSERTED INTO THE TIBIAL BONE METAPHYSES OF 70 FEMALE RABBITS. FIFTY OF THEM RECEIVED 80,000-120,000 UNITS S.C. OF SYNESTROL EACH WEEK FOR UP TO 900 DAYS. SYNESTROL REDUCED THE FREQUENCY OF TUMORS, INHIBITED THE GROWTH OF INTRAMEDULLARY SARCOMAS, AND RETARDED THE DEVELOPMENT OF PRESARCHMATOUS CHANGES INTO SARCOMAS. IT ALSO INHIBITED THE PROLIFERATION OF OSTEOBLASTS AND FIBROBLASTS AROUND THE SITE OF THE CARCINOGEN INSERTION, WHICH MAY ACCOUNT FOR ITS ANTITUMOR EFFECT.

UNCLASSIFIED

USSR

UDC 669.71.074.2

MARGOLIN, Ye. V., BURKAT, V. S., KLYUSHKIN, V. P., CHERKASSKIY, M. L.

"Development of a Method for the Determination of Drop Transfer From Wet Gas Purification Apparatus in Aluminum Production"

Tr. Vses. N-i. Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 168-176. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G162 by the authors).

Translation: A review is presented of existing methods for determination of drop transfer. A new method is suggested, recommended for use both in testing of industrial wet purification apparatus and for organization of periodic testing of drop transfer. The accuracy of the method is quite high in determining drop transfer of up to 1.2 g/m^3 s. t. p. 3 figs; 2 tables.

1/1

USSR

UDC: 621.391.84:621.391.883.2

OSTUDIN, V. D., ~~CHERKASSKIY, Yu. A.~~

"Detection of Signals With Unknown Parameters From Their Integrated Phase Patterns"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 1 (Materials of the Scientific and Technical Conference of the Leningrad Electrical Engineering Institute of Communications -- collection of works, No 1), Leningrad, 1971, pp 16-21 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A20)

Translation: A method is considered for synthesizing receivers which are invariant to unknown signal parameters. The procedure is based on using the integrated phase patterns obtained in a space of coordinates which are integral characteristics of the signals being processed. Resumé.

1/1

Receivers and Transmitters

USSR

UDC 621.391.14

ZAYEZDNYI, A. M., PLOTKIN, Ye. I., ~~CHERKASSKIY, Yu. A.~~, Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Signal Processing Based on Using the Structural Properties of the Signals"

Moscow, Radiotekhnika, Vol 26, No 9, Sep 71, pp 18-24

Abstract: The authors discuss the representation of signals in terms of their structural relations as illustrated by a class of structural models derived by comparing certain phase coordinates of a signal according to some rule. Examples are given of application of the structural model to synthesis of signal processing algorithms. Receivers are designed which are invariant to certain classes of interference. Bibliography of 19 titles.

1/1

Acc. Nr.

AP0045164

Abstracting Service:

CHEMICAL ABST.

5-70

Ref. Code

UR0191

91223a Adhesion of some polymers to metal substrates. Cherkasskaya, P. M.; Bilik, Sh. M.; Gurman, I. M.; Slyudikova, N. N. (USSR). *Plast. Massy* 1970, (1), 62-4 (Russ). Polymeric adhesives, e.g., epoxy resin ED-5 [cured with polyethylene polyamine (I)], epoxy compd. K-139 (cured with I), epoxy compd. K-153, epoxy compd. K-156, and a polyurethane varnish UR-19, were used for bonding bronze and steel plates and polymer films. Bronze and steel plates were sandblasted and defatted prior to bonding. Expts. were conducted with reinforced polymer PLD and PLT films [PLD is a polyamide (II) plasticized with rubber (III), and PLT a II-III-poly(vinyl chloride) copolymer], polypyromellitimide (IV), 1,2-C₆H₄(NH₂)₂-1,3-C₆H₄(CO₂H)₂ (V) copolymer, 3,3'-diaminodiphenyl sulfone (VI)-V copolymer, and 2-MeC₆H₄NH₂-V copolymer. The V-VI copolymer had the highest adhesion to bronze. Bronze and steel plates were best bonded by K-139, and PLD, PLT, and IV films were bonded to bronze and steel plates by K-139 and K-156. CKJR

REEL/FRADE

19780064

Acc. Nr:

AP0036829

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 1, pp/23-126.

TYPES AND VIRULENCE OF HEMOLYTIC STREPTOCOCCI
ISOLATED FROM SCARLET FEVER PATIENTS

Gladkova, K. K.; Strel'tsova, N. A.; Cherkasskaya, R. S.;
Kaminskaya, E. I.; Fiks, L. I.

The type composition of hemolytic streptococci isolated from scarlet fever patients in 1966—1968 are presented. Of the typed strains, 134 (49%) belonged to type 4, and 63 (22.9%) — to type 1. The percentage of M-containing strains among the most widespread types of streptococci (4 and 1) was 68. The greatest number of M-containing cultures (77%) was revealed among the strains belonging to type 4, which was the leading during the period under study.

D.v.

REEL/FRA
19721746

6

CHERKAVSKIY, S. K.

HYDROMETEOROLOGY

Sergey Konstantinovich CHERKAVSKIY

Source: SPBS#60954
10 Jan '74

①

STATE SYSTEM OF INVENTORING WATER AND ITS USAGE AND HYDROLOGIC
CALCULATIONS AND FORECASTING

DOC 356.023

Article by head of the administration of the hydrometeorological
service of agriculture, water conservation, and construction
of the USSR Ministry of Agriculture, Main Administration of the Hydrometeorological
Service, USSR Council of Ministers, Moscow, Hydrometeorological
No 10, 1973, submitted 23 May 1973.

The organizational-technical principles of the state
system for inventoring water and its utilization
by a system of gathering and processing the informa-
tion received and compiling the USSR state water
calendar are discussed.

In accordance with the "Principles of Water Legislation
of the USSR and Union Republics" and the resolution of the
Central Committee of the CPSU and the USSR Council of Ministers
"Intensification of Conservation of Nature and the Improvement
of Utilization of Natural Resources," in 1973 a state system
for inventoring water and its utilization has been introduced
by a unified system for the USSR.

The water accounting and the compilation of the state
hydrometeorological service under the USSR Council of Ministers
jointly with the USSR Ministry of Geology (with respect to the
groundwater division) and the Ministry of Land Improvement and
Water Conservation of the USSR (accounting for usage of
water).

The state accounting with respect to the unified system
for the USSR is applied to water (holding of water) of the USSR
enter usage according to items 4 and 14 of the "Principles of
water legislation of the USSR and Union Republics."

- 22 -

C. HERKAVSKIY S. K.

HYDROMETEOROLOG

Sergiy Konstantinovich Cherkavskiy
Hydrology

Source: SPRS#60954
10 Jan '74

STATE SYSTEM OF INVENTORING WATER AND ITS USAGE AND HYDROLOGIC
CALCULATIONS AND FORECASTING

Article by head of the administration of the hydrometeorological
service of agriculture, water conservation, and construction
service under the USSR Council of Ministers, Moscow, Hydrologiya
1 (1973), Russian, No 10, 1973, submitted 25 May 1974.

The organizational-technical principles of the state
system for inventoring water and its utilization
by a system of gathering and processing the informa-
tion received and compiling the USSR state water
cadaster are discussed.

In accordance with the "Principles of water legislation
of the USSR and Union Republics" and the resolution of the
Central Committee of the CPSU and the USSR Council of Ministers
"Intensification of Conservation of Nature and the Improvement
for Utilization of Natural Resources," in 1973 a state system
for inventoring water and its utilization has been introduced
by a united system for the USSR.

The water accounting and the compilation of the state
water cadaster entrusted to the main administration of the
hydrometeorological service under the USSR Council of Ministers
jointly with the USSR Ministry of Geology (with respect to the
groundwater division) and the Ministry (with respect to the
water conservation of the USSR (accounting for usage of
water).

The state accounting with respect to the united system
of the USSR is applied to water bodies of water of a USSR
and its usage according to items 4 and 14 of the "Principles of
water legislation of the USSR and Union Republics."

1/2 008 UNCLASSIFIED
TITLE--IF A COMPANY MUST BUILD A BRIDGE -U- PROCESSING DATE--20NOV70
AUTHOR--(02)-SLYUSAREV, A., CHERKAY, P.
COUNTRY OF INFO--USSR
SOURCE--VOYENNY VESTNIK, NO 2, 1970, PP 90-92
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--PREFABRICATED BRIDGE, MILITARY CONSTRUCTION, CONSTRUCTION
MACHINERY/(U)KGI AMPHIBIOUS TRACKED VEHICLE, (U)BAT ROAD CONSTRUCTION
MACHINERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0204 STEP NO--UR/0018/70/000/002/0090/0092
CIRC ACCESSION NO--AP0134010
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURVEYED SECTION OF RIVER SHOULD BE MARKED OFF, WITH MARKERS ON THE BRIDGE APPROACH AVENUES. THE COMPANY EXERCISE, IN ADDITION TO THE BRIDGE TRAIN, WILL REQUIRE: 1-2 BAT ROAD LAYERS, A K-61 TRACKED AMPHIBIOUS PERSONNEL CARRIER, AND MAV AMPHIBIOUS RECONNAISSANCE VEHICLE, A TRUCK CRANE, TWO TO FOUR ICE SAWS, FOUR OR FIVE HALF TON HAND WINCHES, AT LEAST FOUR TO SIX CROWBARS (14-16 CM IN DIAMETER AND 3 M LONG), 20 TO 30 ICE BREAKING BARS, ONE OR TWO BULLHORNS, PLUS SIGNALING DEVICES. A THOROUGH JOB SHOULD BE DONE ON THE SITUATION ELEMENTS ON THE BASIS OF WHICH PERSONNEL ARE SUPPOSED TO REACT TO ENEMY ACTION, REPAIRING DAMAGE AND WORKING WITH UNDERMANNED CREWS. THEY SHOULD NOT FORGET TO ESTABLISH A PERSONNEL WARNING FACILITY. RESCUE AND RECOVERY SHOULD BE PARTICULARLY WELL ORGANIZED.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--STRUCTURE OF THE ALDEHYDE FORMED DURING VERBANOL PYROLYSIS -U-

AUTHOR--(02)-PODDUBNAYA, S.S., CHERKAYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 236-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALDEHYDE, ALCOHOL, PYROLYSIS, HYDROGENATION, HEPTANE, ALKYL
RADICAL, MOLECULAR STRUCTURE

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/1497

STEP NO--UR/0063/70/015/002/0236/0237

CIRC ACCESSION NO--APC133498

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0138498

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. PYROLYSIS OF VERBANOL IN A STEEL TUBE AT 450-520DEGREES YIELDS UP TO 26PERCENT 2,6,DIMETHYL,2,7,OCTADIEN,4,OL, UP TO 19PERCENT UNIDENTIFIED ALDEHYDE, AND OTHER UNIDENTIFIED PRODUCTS. IF THE PYROLYSIS IS RUN IN A DISC PYROLYZER WITH THE REACTION SPACE IN THE FORM OF A SLIT, THE REACTION AT 450-50DEGREES WITH 1.3 SEC CONTACT TIME GAVE UP TO 36PERCENT ALDEHYDE, B SUB4 57-8DEGREES, IDENTIFIED AS 2,4,DIMETHYL,3,ETHYL,2,HEXENAL. REDN. AND HYDROGENATION CONVERTED IT INTO 2,4,5,TRIMETHYLHEPTANE. THUS THE PYROLYSIS INVOLVED NOT ONLY RING OPENING BUT SKELETAL ISOMERIZATION AS WELL. FACILITY: VSES. NAUCH.-ISSLED. INST. SIN. NATUR. DUSHISTYKH VESHCH., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 669.14.018.29:539.43:620.178.35

CHERKES, Z. A., KAMENSKIY, A. P., VOLOSKOV, N. V.

"Study of the Influence of Amplitude of Repeated Impact on the Strength of 40Kh Steel as a Function of Tempering Temperature"

Tekhnol. Mashinostroyeniya [Machine Building Technology -- Collection of Works], No 7, Tula, 1972, pp 69-73 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I513, by V. Bochkareva).

Translation: Specimens of 40Kh steel were subjected to the following heat treatment: hardening (heating to $850 \pm 15^\circ$ in a Pb bath, cooling in oil); low temperature tempering (heating in a salt bath at $220 \pm 10^\circ$, cooling in water) to produce "hard" specimens; high temperature tempering (heating in a saltpeter bath at $500 \pm 10^\circ$, cooling in water) to produce "soft" specimens. It is shown that repeated high energy impacts greatly reduce the strength of the "soft" and "hard" specimens, while low energy impacts increase strength. It is established that the maximum number of impacts can be withstood by specimens of "soft" metal, which have high plasticity and low hardness, followed by the steel as delivered rolled, then the "hard" specimens, and finally, the hardened specimens without tempering. 1 figure, 2 tables, 2 biblio. refs.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--NEW REAGENTS FOR THE PHOTOMETRIC DETERMINATION OF MERCURY -U-
AUTHOR--(04)-CHERKESOV, A.I., TONKOSHKUROV, V.S., POSTORONKO, A.I., RYZHOV,
V.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 466-73
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHOTOMETRIC ANALYSIS, CHEMICAL ANALYSIS, MERCURY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0380 STEP NO--UR/0075/70/025/003/0466/0473
CIRC ACCESSION NO--AP0126135
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126135

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. TWO NEW REAGENTS ARE SUGGESTED FOR DETN. OF HG(II) IN ACID MEDIA: AZOXINE ASH

(4, (8, HYDROXY, 7, QUINOLYL AZO), 5, HYDROXY, 2, 7, NAPHTHALENE DISULFONIC ACID)

(I) AND AZOXINE TS (II, K

3, (8, HYDROXY, 7, QUINOLYL AZO), 1, 5, NAPHTHALENE DISULFONATE) (II). THEIR SYNTHESIS IS DESCRIBED. I IS SOL. IN H SUB2 O AND ALC., LESS IN ME SUB2 O. THE ACID SOLN. HAS A CINNAMON COLOR. II IS WELL SOL. IN H SUB2 O AND ALC. AN ACID SOLN. HAS YELLOW COLOR. THEIR ACID DISSOCN. CONSTS. OF THE OH GROUPS WERE DETD. SPECTROPHOTOMETRICALLY FOR I AS K SUB1 EQUALS 2.01 TIMES 10 PRIME NEGATIVE 9, K SUB2 EQUALS 1.65 TIMES 10 PRIME NEGATIVE 13, FOR II K SUB1 3.8 TIMES 10 PRIME 9. HG REACTS WITH BOTH REAGENTS IN A 1:2 RATIO. THE MOLAR ABSORPTIVITIES FOR THE COMPLEXES ARE 3.54 TIMES 10 PRIME 4 AND 4.38 TIMES 10 PRIME 4 AT 540 NM, RESP. THE TOTAL INSTABILITY CONSTS. ARE, RESP., FOR I 2.37 TIMES 10 PRIME NEGATIVE 12 AND FOR II 4.27 TIMES 10 PRIME NEGATIVE 10. BEER'S LAW IS OBEYED FOR 1-6 MU G HG-ML NO SUB3 PRIME NEGATIVE, SO SUB4 PRIME 2 NEGATIVE, ALK. EARTH AND ALKALI METALS, PB, AL, BE, ZN, CD, SC, IN, GA AND NOT VERY LARGE AMTS. OF FE(III), BI, CU, NI, AND CO DO NOT INTERFERE WITH THE PHOTOMETRIC DETN. OF HG; BOTH REAGENTS CAN BE ALSO USED FOR THE MERCURIMETRIC DETN. OF CHLORIDES. A PHOTOMETRIC METHOD IS SUGGESTED FOR THE DETN. OF SMALL AMTS. OF HG, WITH II AT PH 1.6 IN PURE SOLNS. AND IN ARTIFICIAL MIXTS. FE, CU, AND NI ARE MASKED WITH K OXALATE.

FACILITY: SARATOV PEDAGOG. INST., SARATOV, USSR.

UNCLASSIFIED

USSR

UDC 543.70

GUERKESOV, A. I., ARGISHEVA, A. I., ASTAKHOVA, N. K., KONYAKHINA, A. A., Saratov State Pedagogic Institute

"Spectrophotometric Study of Complex Formation of Thorium with Bromophthalexon-S and n-Xylenolphthalexon-S"

Ivanovo, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol XIV, No 7, 1971, pp 999-1002

Abstract: Oxyaminopolycarboxylic acids of the triphenylmethane series are widely used in analytical chemistry as reagents for the ions of many metals [V. G. Brudz', et al., Trudy IRYeA, No 30, 145, 1967]. A study is made here of the complex formation of thorium with new representatives of this series of compounds: 3,3'-bis-N,N'-di(carboxymethyl)aminomethyl-5,5'-dibromosulfophthaleine (bromophthalexon-S -- I) and 3,3'-bis-N,N'-di(carboxymethyl)aminomethyl-xylenolsulfophthaleine(n-xylenolphthalexon-S -- II). The study was performed spectrophotometrically. A ratio of Th:I = 1:1 was established for pH 1.5-3.0; Th:II = 1:1 for pH 1.8-3.0 and Th:II = 1:2 for pH 4-6. The molar absorption coefficients and pK of the provisional instability constants of the thorium complexes are, respectively: with I, $\epsilon = 1.91 \cdot 10^4$ and $pK = 5.95$; with II $\epsilon_1 = 1.77 \cdot 10^4$ and $\epsilon_2 = 2.53 \cdot 10^4$; $pK_1 = 4.15$ and $pK_2 = 7.45$. The absorption

1/2

USSR

CHERKESOV, A. I., et al., Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya Tekhnologiya, Vol XIV, No 7, 1971, pp 999-1002

spectra of the molecular and ionic forms of the two reagents and their complexes with thorium are presented. Formulas are given for the complex formation process, and the mechanism of the reaction is discussed. The thorium complexes with the two reagents can dissociate with respect to some of the carboxyl groups. However, under conditions of constant acidity this has no effect on the optical properties of the solutions of the complexes, and the relations between the various forms of the complexes of one and the same composition remain constant. Thus, the molar absorption coefficients ϵ and pK of the provisional instability constants of the complexes were calculated by the Komar' method [N. P. Komar', Uch. zap., Vol 37, Tr. n.-i. in-ta khimii, Khar'kov University, No 8, 37, 1951].

2/2

- 11 -

1/2 047 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LONG WAVES IN AN INHOMOGENEOUS VISCOUS FLUID -U-

AUTHOR--(02)-LEVKOV, N.P., CHERKESOV, L.V.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI,
NO 3, 1970, PP 299-306

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--VISCOUS FLUID, VISCOUS FLOW, NAVIER STOKES EQUATION, MOTION
EQUATION, MOTION MECHANICS, OSCILLATION, ATMOSPHERIC PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1992/1168

STEP NO--UR/0362/70/006/003/0299/0306

CIRC ACCESSION NO--AP0112268

UNCLASSIFIED

2/2 047

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0112268

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A STUDY WAS MADE OF TWO LAYERS OF FLUID OF DIFFERENT VISCOSITY AND DENSITY. THE UPPER LAYER HAS A FREE SURFACE AND A CONSTANT DEPTH H_{SUB1} ; THE LOWER LAYER HAS A FINITE DEPTH H_{SUB2} (X, Y). TANGENTIAL AND NORMAL STRESSES ACT AT THE FREE SURFACE. ASSUMING THE MOVEMENTS TO BE SLOW, A LINEARIZED SYSTEM OF NAVIER-STOKES EQUATIONS CAN BE USED AS THE INITIAL SYSTEM OF EQUATIONS OF MOTION OF THE FLUID. ON THIS BASIS THE AUTHORS GIVE A SYSTEMATIC DERIVATION OF THE EQUATIONS FOR LONG WAVES IN A TWO LAYER VISCOUS FLUID AND EXAMINE THE PROBLEM OF INTERNAL LONG WAVES CAUSED BY PERIODIC OSCILLATIONS OF ATMOSPHERIC PRESSURE IN THE ABSENCE AND IN THE PRESENCE OF AN ICE COVER.

FACILITY: MARINE HYDROPHYSICAL INSTITUTE, ACADEMY OF SCIENCES UKRAINIAN SSR; MOSCOW.

UNCLASSIFIED

USSR

UDC 539.3.532.5

BUKATOV, A. Ye. and CHERKESOV, L. V. Marine Hydrophysical Institute,
Academy of Sciences, Ukrainian SSR

"Influence of the Inhomogeneities of a Fluid Upon the Oscillations of a
Thin Elastic Plate"

Kiev, Prikladnaya Mekhanika, No 6, Jun 72, pp 111-117

Abstract: Consideration is given to a problem dealing with the forced oscillations of a thin elastic, isotropic plate, floating upon the surface of an inhomogeneous fluid with continuous change of density. In the top layer the density increases exponentially with the depth, and in the bottom layer the density is constant. Waves are generated by periodic normal stresses applied to the external side of the plate. The influence of inhomogeneity of the liquid upon the oscillations of the plate is ascertained. A study is also made of the influence of the plate characteristics upon the wave movements of the liquid. 2 figures. 2 tables. 7 references.

1/1

- 93 -

1/2 013
UNCLASSIFIED
TITLE--ON THE INFLUENCE OF VISCOSITY ON THE MOTION OF TSUNAMI WAVES -U-
PROCESSING DATE--16OCT70
AUTHOR--CHERKESOV, L.V.
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, 1970, VOL
6, NR 1, PP 86-91
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS
TOPIC TAGS--TSUNAMI, TIDAL WAVE, FLUID VISCOSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1075
STEP NO--UR/0362/70/006/001/0086/0091
CIRC ACCESSION NO--AP0118225
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118225

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROBLEM OF UNSTEADY LONG WAVES
ARISING ON THE FREE SURFACE OF A VISCOUS FLUID IN A BASIN OF VARIABLE
DEPTH IS CONSIDERED. FACILITY: AKADEMIYA NAUK USSR, MORSKOY
GIDROFIZICHESKIY INSTITUT.

UNCLASSIFIED

TECHNICAL TRANSLATION

PT-11 /
FSC-MT-23-1498-72

ENGLISH TITLE: UNSTABLE INTERNAL WAVES IN A VISCOUS FLUID

FOREIGN TITLE: НЕУСТОЙЧИВЫЕ ВНУТРЕННИЕ ВОЛНЫ В ВЯЗКОЙ ЖИДКОСТИ

AUTHOR: V. S. FEDOSEENKO, L. V. CHERKESOV

SOURCE: NAUKE HYDROPHYSICAL RESEARCH, NO. 1 (43)

Translated for FSC by ACS1

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information. Requests for additional copies of this document should be addressed to Department A, National Technical Information Service, Springfield, Virginia 22151. Approved for public release; distribution unlimited.

CHERKESOV, L. V.

USSR

UDC: 666.972:691.175

CHERKINSKIY, YU. S., Doctor of Chemical Sciences, and SLIPCHENKO, G. F., Engineer,
All-Union Scientific Research Institute of New Building Materials

"Latex-Cement Sand Grades of Concrete With Improved Properties"

Moscow, Beton i Zhelezobeton, No 5, May 73, pp 13-14

Abstract: The authors study the strength characteristics of latex-cement, sand grades of concrete. The results show that the introduction of latex into cement-sand grades of concrete makes it possible to obtain sufficiently high strength indices. The compressive strength for these grades of concrete for the hardening durations studied including the initial 14 days is higher than for the air dried cement-sand grades. The bending strength of latex containing grades is two times that of the ordinary concrete. The latex containing grades of concrete reach 70 percent of their compressive strength by the end of the first month. In holding the latex grades of cement in water for six months, bending strength varies insignificantly, while compressive strength falls, but does not exceed the softening factor of 0.7 in all cases. The one peculiarity of the latex containing grades of concrete is that they lose strength in water during the initial 7-14 days with subsequent increase in strength and ultimate leveling. These new grades of concrete also adhere well to the ordinary cement-sand grades both in cold and water.

1/1

- 69 -

Concrete

USSR

UDC 539.166:666.942

CHERKINSKIY, YU. S., KOROLEVA, A. T., and VERESHCHINSKIY, I. V., All-Union Scientific Research Institute of New Construction Materials and Physico-Chemical Institute imeni Karpov

"Effect of Ionizing Radiation on Cement"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 12, Dec 70, pp 2736-2739

Abstract: Exposure of Portland or Alumina cement to a 200 Mrad dose of γ - radiation has no effect on their crystal structure. Some changes are observed in the structure of these cements: aqueous suspension of irradiated Portland cement reaches its maximum creep strength somewhat faster than the non-irradiated material; the opposite is true for the alumina cement. There is no observable difference in mechanical strength or the degree of hydration between the irradiated and non-irradiated specimens. It has been proposed that the neogenic polymeric hydrates found in the cement rock are formed by polycondensation.

1/1

USSR

UDC 547.341

PUDOVIK, A. N., YASTREBOVA, G. YE., CHERKOSOVA, O. A.

"The Reactions of Condensation and Addition of the Diethyl Ether of Carbamoylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 88-90

Abstract: It has been demonstrated [A. N. Pudovik, et al., DAN SSSR, No 90, 799, 1953; A. N. Pudovik, et al., ZhOKh, No 36, 1232, 1966] that organophosphorus compounds with an active methylene radical -- the diethyl esters of cyanomethyl, acetomethyl and carboethoxymethylphosphonic acids -- easily enter into the reaction of condensation with aldehydes under the conditions of basic catalysis. As a continuation of this research, a study was made of analogous reactions with the diethyl esters of carbamoylmethylphosphonic and carbalkoxymethylphosphonic acids. As a result of condensations of diethyl ether of carbamoylmethylphosphonic acid with benzoic, cinnamic aldehydes, para-substituted benzaldehydes and furfural, the diethyl esters of α -carbamoyl- β -phenylvinylphosphonic acids were obtained. The addition of diethyl ether of carbamoylmethylphosphonic acids to the nitrile of acrylic acid and methyl ester of acrylic acid was realized. The reaction took place in the presence of sodium ethylate. They are accompanied by a significant exothermic effect and lead to the formation of the addition products with yields of 40-53%.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STRUCTURE OF TA SUB2 D -U-
AUTHOR--PETRUNIN, V.F., SOMENKOV, V.A., SHILSHTEYN, S.SH., CHERKOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--KRISTALLOGRAFIYA, 1970, 15(1) 171-3
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DEUTERIUM COMPOUND, TANTALUM COMPOUND, NEUTRON DIFFRACTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0015 STEP NO--UR/0070/70/015/001/0171/0173
CIRC ACCESSION NO--AP0102115
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY MEANS OF A HIGH INTENSITY, HIGH RESOLUTION NEUTRON DIFFRACTOMETER, POLYCRYST. TAD SUBO TIMES 53 WAS STUDIED AT 80-400DEGREEK. ON THE NEUTRON DIFFRACTION PATTERNS, IN ADDN. TO THE DIFFRACTION PEAKS OBSD. PREVIOUSLY BY WALLACE (CA 56: 12396G), SEVERAL WEAK REFLECTIONS ALSO WERE OBSD. ALL THE REFLECTIONS MAY BE INDEXED IN A UNIT CELL WITH PARAMETERS A APPROXIMATELY EQUAL TO B APPROXIMATELY EQUAL TO A SUBO ROOT BAR 2 AND C APPROXIMATELY EQUAL TO A SUBO (A SUBO IS THE TA LATTICE PERIOD). THE WEAK HYPERFINE STRUCTURAL REFLECTIONS ARE DESCRIBED BY THE RELATION $K + L = 2N$. TAD SUBO TIMES 53 BELONGS TO THE SPACE GROUP D_{6h}^{17} OVER 2 MINUS A222; 4 TA ATOMS ARE IN POSITION 4K AND 2 D IN 2A POSITION. THIS MODEL IS CHARACTERIZED BY 1 PARAMETER X FOR METAL ATOMS; ITS VALUE OBTAINED BY MINIMALIZATION OF DIVERGENCE FACTOR FOR HYPERFINE REFLECTIONS AT ROOM TEMP. IS $X = 0.012$ (0.017 FOR THE TEMP. OF LIQ. N) FROM THE PERIOD A OF THE ORTHORHOMBIC DEUTERIDE LATTICE.

UNCLASSIFIED